

INTERNATIONAL SEARCH REPORT

Inten I Application No
PCT/EP2004/010376

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B01J19/18 C08F2/01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B01J C08F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | GB 1 482 148 A (MONTEDISON SPA) 3 August 1977 (1977-08-03) page 1, line 36 - line 56 page 1, line 84 - page 2, line 7 page 2, line 8 - line 30; figure 1 | 2-8 |
| A | WO 97/04015 A (MONTELL TECHNOLOGY COMPANY BV) 6 February 1997 (1997-02-06) abstract page 11, line 1 - line 8 page 11 - page 13; figure 1 page 14, paragraph 4 - page 15, paragraph 1 ----- -/- | 2-8 |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

3 December 2004

Date of mailing of the international search report

13/12/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 6 239 235 B1 (FRANKLIN III ROBERT K ET AL) 29 May 2001 (2001-05-29) cited in the application abstract column 1, line 40 - line 53 column 2, line 60 - column 3, line 33 | 2-8 |
| P,X | WO 2004/026463 A (ATOFINA RES ; FOUARGE LOUIS (BE); LEWALLE ANDRE (BE)) 1 April 2004 (2004-04-01) abstract page 3, line 4 - line 30; figure 1 page 4, line 9 - line 11 claim 15 | 2-8 |
| A | DE 905 547 C (BATAAFSCHE PETROLEUM) 4 March 1954 (1954-03-04) page 1, line 1 - line 25 page 2, line 90 - line 100 page 3, line 10 - line 32; figure 4 | 2-8 |

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In international application No.
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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 1

Claim 1 indicates a process defined by reference to a desirable characteristic, namely an average solids concentration of more than 53 % by weight (continuous discharge) or more than 45 % by weight (discontinuous discharge) and with an ethylene concentration of at least 10 mol %. Claim 1 lacks clarity (Article 6 PCT). An attempt is made to define the process by reference to a result to be achieved. The concentrations of solids and of ethylene indicated in claim 1 are achieved by only a limited number of methods, namely those using a loop reactor whose diameter varies by at least 10% and in which there is at least one widening and narrowing (see the description on page 2, lines 18-26; page 4, line 29-32; page 4, line 34 - page 5, line 17). In the present case, claim 1 so lacks support that a meaningful search over the whole of the claimed scope of claim 1 is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear namely claim 2 and claims 3-8 restricted to the dependency of claim 2.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern

Application No

PCT/EP2004/010376

| Patent document cited in search report | | Publication date | | Patent family member(s) | Publication date |
|---|----|---------------------|----|----------------------------|---------------------|
| GB 1482148 | A | 03-08-1977 | IT | 995929 B | 20-11-1975 |
| | | | BE | 821118 A1 | 16-04-1975 |
| | | | DE | 2449150 A1 | 24-04-1975 |
| | | | FR | 2248288 A1 | 16-05-1975 |
| | | | JP | 1370948 C | 25-03-1987 |
| | | | JP | 50067887 A | 06-06-1975 |
| | | | JP | 61032321 B | 26-07-1986 |
| | | | NL | 181435 B | |
| | | | NL | 7413474 A ,C | 21-04-1975 |
| | | | US | 3983096 A | 28-09-1976 |
| <hr/> | | | | | |
| WO 9704015 | A | 06-02-1997 | IT | MI951562 A1 | 20-01-1997 |
| | | | AT | 176914 T | 15-03-1999 |
| | | | AU | 719107 B2 | 04-05-2000 |
| | | | AU | 6734896 A | 18-02-1997 |
| | | | BG | 62814 B1 | 31-08-2000 |
| | | | BG | 101414 A | 28-11-1997 |
| | | | BR | 9606569 A | 21-10-1997 |
| | | | CA | 2200428 A1 | 06-02-1997 |
| | | | CN | 1165525 A ,B | 19-11-1997 |
| | | | CN | 1229801 A | 29-09-1999 |
| | | | CZ | 9701202 A3 | 15-10-1997 |
| | | | DE | 69601569 D1 | 01-04-1999 |
| | | | DE | 69601569 T2 | 26-08-1999 |
| | | | DK | 782587 T3 | 27-09-1999 |
| | | | EG | 21069 A | 31-10-2000 |
| | | | WO | 9704015 A1 | 06-02-1997 |
| | | | EP | 0782587 A1 | 09-07-1997 |
| | | | ES | 2130842 T3 | 01-07-1999 |
| | | | GR | 3029770 T3 | 30-06-1999 |
| | | | HU | 9702440 A2 | 29-06-1998 |
| | | | IL | 120482 A | 19-03-2001 |
| | | | JP | 10506432 T | 23-06-1998 |
| | | | NO | 971282 A | 20-05-1997 |
| | | | NZ | 315601 A | 28-10-1998 |
| | | | PL | 319349 A1 | 04-08-1997 |
| | | | RO | 118876 B1 | 30-12-2003 |
| | | | RU | 2167164 C2 | 20-05-2001 |
| | | | TR | 9700212 T1 | 21-08-1997 |
| | | | TW | 460482 B | 21-10-2001 |
| | | | US | 2002061264 A1 | 23-05-2002 |
| | | | US | 5698642 A | 16-12-1997 |
| | | | US | 6413477 B1 | 02-07-2002 |
| | | | ZA | 9606125 A | 10-02-1997 |
| <hr/> | | | | | |
| US 6239235 | B1 | 29-05-2001 | AT | 276282 T | 15-10-2004 |
| | | | BR | 9802445 A | 15-06-1999 |
| | | | CA | 2243250 A1 | 15-01-1999 |
| | | | CN | 1208046 A | 17-02-1999 |
| | | | DE | 69826190 D1 | 21-10-2004 |
| | | | DK | 891990 T3 | 15-11-2004 |
| | | | EP | 0891990 A2 | 20-01-1999 |
| | | | HU | 9801569 A2 | 28-05-1999 |
| | | | JP | 11080210 A | 26-03-1999 |
| | | | NO | 983277 A | 18-01-1999 |
| | | | RU | 2221812 C2 | 20-01-2004 |
| | | | SG | 72838 A1 | 23-05-2000 |
| | | | TR | 9801363 A2 | 22-02-1999 |

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Interr

Application No

PCT/EP2004/010376

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| US 6239235 | B1 | TW 515808 B | 01-01-2003 |
| | | US 2002187081 A1 | 12-12-2002 |
| | | US 2003023010 A1 | 30-01-2003 |
| | | US 2003023009 A1 | 30-01-2003 |
| | | US 2003023011 A1 | 30-01-2003 |
| | | US 2003027944 A1 | 06-02-2003 |
| | | US 2003012705 A1 | 16-01-2003 |
| | | US 2003050409 A1 | 13-03-2003 |
| | | US 2003229187 A1 | 11-12-2003 |
| | | US 2003092856 A1 | 15-05-2003 |
| | | US 2004122187 A1 | 24-06-2004 |
| | | US 2004136881 A1 | 15-07-2004 |
| | | US 2004192860 A1 | 30-09-2004 |
| | | ZA 9806097 A | 28-01-1999 |
| WO 2004026463 | A | EP 1410843 A1 | 21-04-2004 |
| | 01-04-2004 | WO 2004026463 A1 | 01-04-2004 |
| DE 905547 | C | NONE | |

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